REMARKS

Applicant respectfully requests reconsideration and allowance of the subject application. Claims 1 and 36 are amended. Claims 1-48 are pending in this application.

Claims 1, 2, 4-7 and 9-18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Duvillier et al., published U.S. Patent Application No. 2002/0074082 (hereinafter "Duvillier") in view of Zakai et al., U.S. Patent No. 6,415,372 (hereinafter "Zakai"). Applicant respectfully submits that claims 1, 2, 4-7 and 9-18 are not obvious over Duvillier in view of Zakai.

Duvillier is directed to a system modification processing technique implemented on an intrinsic versioning, non-positional information storage and retrieval system (see, p. 1, ¶ 3). As discussed in the Abstract of Duvillier, a technique is disclosed for implementing system modification operations in an information storage and retrieval system. The information storage and retrieval system includes persistent memory configured or designed to store object data. The persistent memory includes at least one data file for storing object data. A first system modification request relating to a first data file is received, the first data file including a first object stored therein. The first system modification request is then implemented.

Zakai is directed to rolling back storage subsystem reconfigurations (see, Title, and col. 1, lines 35-37). As discussed in the Abstract of Zakai, Zakai discusses a method and an apparatus for reconfiguring a storage subsystem by performing an ordered sequence of reconfigurations of physical storage volumes of the storage subsystem. The method and apparatus perform a portion of the

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sequence of reconfigurations, in response to receiving a rollback request, in an order that is reversed with respect to the order of the sequence.

With respect to amended claim 1, amended claim 1 recites:

> A method for determining where to store object replicas, the method comprising:
> receiving an indication of a homeless replica of an object, wherein the object has a plurality of replicas including the homeless replica;
> determining an initial placement for the homeless replica, wherein the initial placement is one of a plurality of devices in a system;
> evaluating, on an object by object basis, whether any replicas of the object can be swapped with one of a plurality of replicas of another object and not reduce a combined object availability of the two objects; and
> swapping a replica of the object with the one of the plurality of replicas of the other object only if the swapping does not reduce the combined object availability of the two objects.

Applicant respectfully submits that no such method is disclosed or suggested by Duvillier in view of Zakai.

In the May 4, 2005 Office Action at p. 15, it is acknowledged that Duvillier does not disclose the evaluating and swapping of claim 1, but Zakai is relied on as disclosing this evaluating and swapping. However, amended claim 1 recites evaluating, on an object by object basis, whether any replicas of the object can be swapped with one of a plurality of replicas of another object and not reduce a combined object availability of the two objects. Applicant respectfully submits that there is no disclosure or suggestion of performing such an evaluation on an object by object basis as recited in amended claim 1.

Zakai discusses swapping storage volumes A-G (see, col. 5, line 50 – col. 6, line 15). These storage volumes are the result of the storage devices being

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physically divided into separate storage volumes, which may either be disk partitions identified by device, head, and cylinder identifiers or smaller regions of the physical storage devices (see, col. 3, lines 35-40). Nowhere in Zakai, however, is there any discussion or mention of evaluating, on an object by object basis, whether any replicas of the object can be swapped with one of a plurality of replicas of another object – Zakai discusses swapping entire storage volumes, not evaluation of replicas on an object by object basis. Without any such discussion or mention, Applicant respectfully submits that Zakai cannot disclose or suggest the evaluating of amended claim 1.

With respect to Duvillier, Duvillier is not cited as curing, and does not cure these deficiencies of Zakai. Accordingly, for at least these reasons, Applicant respectfully submits that amended claim 1 is allowable over Duvillier in view of Zakai.

With respect to claims 2, 4-7, 9-11, 14, 15, and 17, given that claims 2, 4-7, 9-11, 14, 15, and 17 depend from amended claim 1, Applicant respectfully submits that claims 2, 4-7, 9-11, 14, 15, and 17 are likewise allowable over Duvillier in view of Zakai for at least the reasons discussed above with respect to amended claim 1.

With respect to claims 12 and 13, claims 12 and 13 depend from amended claim 1 and Applicant respectfully submits that claims 12 and 13 are allowable over Duvillier in view of Zakai for at least the reasons discussed above with respect to amended claim 1. Furthermore, claim 12 recites "wherein the swapping results in increasing an availability of the object and decreasing an availability of the other object", and claim 13 recites "wherein the swapping results in decreasing

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an availability of the object and increasing an availability of the other object". Applicant respectfully submits that no such swapping is disclosed or suggested by Duvillier in view of Zakai.

In the May 4, 2005 Office Action at p. 17, it was asserted that Zakai at col. 6, lines 5-15, discloses the swapping of claims 12 and 13. This cited portion of Zakai reads as follows:

> Data availability will not be compromised by the swaps. The service processor 28 makes a check to determine whether performing the swap will impact data availability. Availability is less affected if the storage subsystem 10 has multiple copies of the data to be swapped, e.g., in a redundant array of inexpensive disks (RAID). If multiple copies exist, the swap of a storage volume A-G holding one copy does not reduce the overall availability of the data. If swapping compromises data availability, the swap is not performed at step 60.

Applicant respectfully submits that, by stating that data availability will not be compromised, Zakai cannot disclose or suggest a situation where the availability of one object is decreased. Decreasing availability would compromise data availability, and thus Zakai discloses that such a swap would not be performed. Accordingly, Applicant respectfully submits that Zakai cannot disclose "wherein the swapping results in increasing an availability of the object and decreasing an availability of the other object" as recited in claim 12, and "wherein the swapping results in decreasing an availability of the object and increasing an availability of the other object" as recited in claim 13.

With respect to Duvillier, Duvillier is not cited as curing, and does not cure these deficiencies of Zakai. Accordingly, for at least these reasons, Applicant respectfully submits that claims 12 and 13 are allowable over Duvillier in view of Zakai.

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With respect to claim 16, claim 16 depends indirectly from amended claim 1 and Applicant respectfully submits that claim 16 is allowable over Duvillier in view of Zakai for at least the reasons discussed above with respect to amended claim 1. Furthermore, claim 16 recites:

> A method as recited in claim 14, wherein the selecting comprises selecting the one of the plurality of objects that has the lowest object availability.

Applicant respectfully submits that no such selecting is disclosed or suggested by Duvillier in view of Zakai.

In the May 4, 2005 Office Action at p. 18, it was asserted that Zakai at col. 5, lines 50-60, discloses the selecting of claim 16. However, this cited portion of Zakai discusses the selection of data swaps based on workloads, not availability. The workload for a particular storage volume refers to the number of data accesses to the storage volume (see, col. 4, lines 29-31). As the workload refers to the number of data accesses to the storage volume, the workload is different than the availability of the storage volume. The number of data accesses to a storage volume may be high or low regardless of the availability of the storage volume. Applicant respectfully submits that Zakai only discusses selection of data swaps based on workloads, and that nowhere in the cited portion of Zakai, or elsewhere in Zakai, is there any discussion or mention of selecting an object based on the object's availability, much less of selecting an object that has the lowest object availability. Without any such discussion or mention, Applicant respectfully submits that Zakai cannot disclose or suggest the selecting of claim 16.

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With respect to Duvillier, Duvillier is not cited as curing, and does not cure these deficiencies of Zakai. Accordingly, for at least these reasons, Applicant respectfully submits that claim 16 is allowable over Duvillier in view of Zakai.

With respect to claim 18, claim 18 depends from amended claim 1 and Applicant respectfully submits that claim 18 is allowable over Duvillier in view of Zakai for at least the reasons discussed above with respect to amended claim 1. Furthermore, Applicant respectfully submits that, similar to the discussion above regarding claim 16, Duvillier in view of Zakai does not disclose or suggest wherein the other object is the one of the plurality of objects that has the highest object availability. Accordingly, for at least these reasons, Applicant respectfully submits that claim 18 is allowable over Duvillier in view of Zakai.

Claims 3 and 8 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Duvillier in view of Zakai and further in view of Mukherjee et al., U.S. Patent No. 6,466,978 (hereinafter "Mukherjee"). Applicant respectfully submits that claims 3 and 8 are not obvious over Duvillier in view of Zakai and further in view of Mukherjee.

Mukherjee is directed to multimedia file systems using file managers located on clients for managing network attached storage devices (see, Title). As discussed in the Abstract of Mukherjee, the file system includes a cluster that comprises one cluster manager and at least one file manager with each network storage device. The cluster manager is located on a client, includes an admission controller for controlling the admission of a request from a client for a file operation upon a selected file. A network bandwidth request from the admission controller is responded to by a network status determiner included in the cluster

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manager. The network status determiner determines the available network bandwidth. Each file manager is located on one of the clients. The file managers manage file maintenance procedures of corresponding files located on the network storage device. Each file manager includes a disk status determiner for determining the available disk bandwidth. The disk status determiner responds to a request from the admission controller.

With respect to claims 3 and 8, claims 3 and 8 depend from amended claim 1 and Applicant respectfully submits that claims 3 and 8 are allowable over Duvillier in view of Zakai for at least the reasons discussed above with respect to amended claim 1. Mukherjee is not cited as curing, and does not cure, these deficiencies of Duvillier in view of Zakai. Accordingly, for at least these reasons, Applicant respectfully submits that claims 3 and 8 are allowable over Duvillier in view of Zakai and further in view of Mukherjee.

Claims 19, 22-33, 35-37 and 39-41 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Zakai. Applicant respectfully submits that claims 19, 22-33, 35-37 and 39-41 are not obvious over Zakai.

With respect to claim 19, claim 19 recites:

> One or more computer readable media having stored thereon a plurality of instructions that, when executed by one or more processors of a computing device, causes the one or more processors to perform acts comprising:
>
> working, in conjunction with one or more other processors of another computing device, to determine whether a replica of a file managed by the computing device and a replica of another file managed by the other computing device can be swapped with one another to bring an availability of the file and an availability of the other file closer; and

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> swapping the replica of the file and the replica of the other file only if the swapping brings the availability of the file and the availability of the other file closer.

Applicant respectfully submits that no such working and swapping is disclosed or suggested by Zakai.

In the May 4, 2005 Office Action at p. 20, Zakai at col. 6, lines 5-15 is cited as disclosing the working and swapping of claim 19. Applicant respectfully disagrees and submits that Zakai does not disclose or suggest to bring an availability of the file and an availability of the other file closer, and swapping the replica of the file and the replica of the other file only if the swapping brings the availability of the file and the availability of the other file closer.

Data availability is discussed at col. 6, lines 5-15 of Zakai, which reads as follows:

> Data availability will not be compromised by the swaps. The service processor 28 makes a check to determine whether performing the swap will impact data availability. Availability is less affected if the storage subsystem 10 has multiple copies of the data to be swapped, e.g., in a redundant array of inexpensive disks (RAID). If multiple copies exist, the swap of a storage volume A-G holding one copy does not reduce the overall availability of the data. If swapping compromises data availability, the swap is not performed at step 60.

However, there is no discussion or mention in this cited portion of Zakai of bringing an availability of the file and an availability of the other file closer. Zakai discusses that data availability will not be compromised. Simply saying that data availability will not be compromised does not provide any disclosure or suggestion of bringing two availabilities closer. Zakai discusses balancing workloads (see, col. 4, lines 64-66), and that data swaps are performed to balance workloads (see, col. 5, lines 50-52). The only discussion of data availability in

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Zakai is found at col. 6, lines 5-15 of Zakai, which discusses that data availability will not be compromised when performing such workload balancing data swaps. Nowhere in Zakai is there any discussion or mention that such workload balancing data swaps bring the availability of two files closer.

Furthermore, as discussed in Applicant's specification at p. 12, line 24 – p. 13, line 4, the availability of one file may actually be decreased. Applicant respectfully submits that by indicating that data availability will not be compromised by the swaps, Zakai cannot disclose or suggest a situation where the availability of one file may actually be decreased, as allowed for in claim 19.

Accordingly, for at least these reasons, Applicant respectfully submits that claim 19 is allowable over Zakai.

With respect to claims 22-26, 28, and 31-32, given that claims 22-26, 28, and 31-32 depend from claim 19, Applicant respectfully submits that claims 22-26, 28, and 31-32 are likewise allowable over Duvillier in view of Zakai for at least the reasons discussed above with respect to claim 19.

With respect to claim 27, claim 27 depends indirectly from claim 19 and Applicant respectfully submits that claim 27 is allowable over Zakai for at least the reasons discussed above with respect to claim 27. Furthermore, claim 27 recites:

> One or more computer readable media as recited in claim 25, wherein the plurality of additional computing devices exclude any computing device on which a replica of the file is already stored.

Applicant respectfully submits that no such exclusion of any computing device on which a replica of the file is already stored is disclosed or suggested by Zakai.

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In the May 4, 2005 Office Action at p. 22, it was asserted that Zakai at col. 3, lines 30-35, discloses the exclusion of claim 27. This cited portion of Zakai is found in the paragraph spanning col. 3, lines 29-35, which reads as follows:

> Since several host controllers 21-23 may request access to the storage devices 12-14 simultaneously, the global memory 19 includes a lock. A requesting device 12-14 obtains the lock prior to accessing the storage devices 15-17 and relinquishes the lock after performing the desired accesses. Requests for the lock are stored in a lock request queue.

Thus, it can be seen that this cited portion of Zakai discusses controlling access to the storage devices by employing locks so that only one requesting device can access the storage devices at a time. In contrast, claim 27 discusses excluding, from a plurality of additional computing devices on which a homeless replica may initially be placed, any computing device on which a replica of the file is already stored. The lock system of Zakai simply protects against multiple controllers accessing the storage devices simultaneously. There is no discussion or mention in such a lock system of excluding particular computing devices from a collection of multiple computing devices on which a homeless replica may initially be placed, much less basing the exclusion on the existence of a replica of the file already being stored on the computing device. Without any such discussion or mention, Applicant respectfully submits that Zakai cannot disclose or suggest wherein the plurality of additional computing devices exclude any computing device on which a replica of the file is already stored as recited in claim 27.

Accordingly, for at least these reasons, Applicant respectfully submits that claim 27 is allowable over Zakai.

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With respect to claims 29 and 30, claims 29 and 30 depend from claim 19 and Applicant respectfully submits that claims 29 and 30 are allowable over Zakai for at least the reasons discussed above with respect to claim 19. Furthermore, Applicant respectfully submits that, similar to the discussion above regarding claim 16, Zakai discusses selection of data swaps based on workloads, not on a file's availability. Thus, Zakai does not disclose or suggest wherein the file is selected as the one of a plurality of files managed by the computing device having a lowest file availability, or the other file is selected as the one of another plurality of files managed by the other computing device having a highest file availability. Accordingly, for at least these reasons, Applicant respectfully submits that claims 29 and 30 are allowable over Zakai.

With respect to claim 33, claim 33 recites:

> A serverless distributed file system comprising:
> a first plurality of computing devices storing files;
> a second plurality of computing devices managing storage of the files;
> wherein a first computing device of the second plurality of computing devices selects a file for which it manages storage and communicates with a second computing device of the second plurality of computing devices to determine whether a replica of the file and a replica of another file for which the second computing device manages storage can be swapped in order to improve a combined file availability; and
> if the replicas can be swapped to improve the combined file availability, then instructing the one of the first plurality of computing devices on which the replica of the file is stored to transfer the replica of the file to the one of the first plurality of computing devices on which the replica of the other file is stored, and instructing the one of the first plurality of computing devices on which the replica of the other file is stored to transfer the replica of the other file to the one of the first plurality of computing devices on which the replica of the file is stored.

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Applicant respectfully submits that no such serverless distributed file system is disclosed or suggested by Zakai.

As discussed above regarding claim 19, Zakai discusses balancing workloads (see, col. 4, lines 64-66), and that data swaps are performed to balance workloads (see, col. 5, lines 50-52). However, nowhere in Zakai is there any discussion or mention of to determine whether a replica of the file and a replica of another file for which the second computing device manages storage can be swapped in order to improve a combined file availability. Zakai is concerned with balancing workloads, not improving a combined availability. Without any discussion or mention of improving a combined availability, Applicant respectfully submits that Zakai cannot disclose or suggest to determine whether a replica of the file and a replica of another file for which the second computing device manages storage can be swapped in order to improve a combined file availability as recited in claim 33.

Accordingly, for at least these reasons, Applicant respectfully submits that claim 33 is allowable over Zakai.

With respect to claim 35, claim 35 depends from claim 33 and Applicant respectfully submits that claim 35 is allowable over Zakai for at least the reasons discussed above with respect to claim 33. Furthermore, claim 35 recites:

> A serverless distributed file system as recited in claim 33, wherein the second plurality of computing devices further receives an indication of a homeless replica of the file, and randomly selects, as a computing device on which to store the homeless replica, one of the first plurality of computing devices on which no other replica of the file is already stored.

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Applicant respectfully submits that no such selection is disclosed or suggested by Zakai.

In the May 4, 2005 Office Action at pp. 25-26, Zakai at col. 6, lines 50-60 is cited as disclosing the selection of claim 35. This cited portion of Zakai discusses selecting data swaps that decrease workload imbalance by more than a threshold amount (see, col. 6, lines 47-49). This selecting of Zakai is based on workload imbalances between storage devices and on threshold amount, not on whether a replica of a file is already stored on a computing device. Nowhere in this cited portion of Zakai, or elsewhere in Zakai, is there any discussion or mention of such selection being based on whether no other replica of the file is already stored on a computing device. Without any discussion or mention of such selection being based on whether no other replica of the file is already stored on a computing device, Applicant respectfully submits that Zakai cannot disclose or suggest wherein the second plurality of computing devices further receives an indication of a homeless replica of the file, and randomly selects, as a computing device on which to store the homeless replica, one of the first plurality of computing devices on which no other replica of the file is already stored as recited in claim 35.

Accordingly, for at least these reasons, Applicant respectfully submits that claim 35 is allowable over Zakai.

With respect to amended claim 36, amended claim 36 recites

> One or more computer readable media having stored thereon a plurality of instructions that, when executed by one or more processors of a computing device, causes the one or more processors to:

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initially place replicas of a file on different ones of a plurality of devices using a first process; and

subsequently improve the placement of replicas of a plurality of files by evaluating, on a file by file basis, whether any replicas of a first file can be swapped with any replicas of a second file without a reduction in the combined file availability of the first and second files, and swapping a replica of the first file with a replica of the second file if the swapping results in no reduction in the combined file availability of the first and second files.

Applicant respectfully submits that, similar to the discussion above regarding amended claim 1, Zakai does not disclose or suggest evaluating, on a file by file basis, whether any replicas of a first file can be swapped with any replicas of a second file without a reduction in the combined file availability of the first and second files as recited in amended claim 36. For at least these reasons, Applicant respectfully submits that amended claim 36 is allowable over Zakai.

With respect to claims 37 and 39, given that claims 37 and 39 depend from amended claim 36, Applicant respectfully submits that claims 37 and 39 are likewise allowable over Zakai for at least the reasons discussed above with respect to amended claim 36.

With respect to claims 40 and 41, claims 40 and 41 depend from amended claim 36 and Applicant respectfully submits that claims 40 and 41 are allowable over Zakai for at least the reasons discussed above with respect to amended claim 36. Furthermore, Applicant respectfully submits that, similar to the discussion above regarding claim 16, Zakai discusses selection of data swaps based on workloads, not on a file's availability. Thus, Zakai does not disclose or suggest wherein the first file is selected as the one of a first plurality of files having a lowest file availability, wherein the first file is selected as the one of a first plurality of files managed having a lowest file availability, or the second file

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is selected as the one of a second plurality of files having a highest file availability. Accordingly, for at least these reasons, Applicant respectfully submits that claims 40 and 41 are allowable over Zakai.

Claims 20 and 38 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Zakai in view of Rabinovich, U.S. Patent No. 6,484,204 (hereinafter "Rabinovich"). Applicant respectfully submits that claims 20 and 38 are not obvious over Duvillier in view of Rabinovich.

As discussed in the Abstract of Rabinovich, Rabinovich is directed to a system and method for distributing requests for objects to hosts that store replicas of the objects, and for managing the placement of the replicas among hosts. Metrics for the historical demand of a replica at a host and the distance of the host from the requester of the object are evaluated and used to make decisions as to where to forward the request substantially independently from any input provided by a host to which a request is forwarded. This simplifies autonomous replica placement decisions made by hosts. A host substantially autonomously uses request metric and load information to select a replica to be deleted, migrated or replicated, and to delete, migrate or replicate a selected replica.

With respect to claims 20 and 38, claims 20 and 38 depend from claims 19 and 36, respectively, and Applicant respectfully submits that claims 20 and 38 are allowable over Zakai for at least the reasons discussed above with respect to claims 19 and 36. Rabinovich is not cited as curing, and does not cure, these deficiencies of Zakai. Accordingly, for at least these reasons, Applicant respectfully submits that claims 20 and 38 are allowable over Zakai in view of Rabinovich.

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Claims 21 and 34 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Zakai in view of Mukherjee. Applicant respectfully submits that claims 21 and 34 are not obvious over Zakai in view of Mukherjee.

With respect to claims 21 and 34, claims 21 and 34 depend from claims 19 and 33, respectively, and Applicant respectfully submits that claims 21 and 34 are allowable over Zakai for at least the reasons discussed above with respect to claims 19 and 33. Mukherjee is not cited as curing, and does not cure, these deficiencies of Zakai. Accordingly, for at least these reasons, Applicant respectfully submits that claims 21 and 34 are allowable over Zakai in view of Mukherjee.

Claims 42-44 and 46-48 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Falls in view of Zakai. No patent number for Falls was provided in the May 4, 2005 Office Action. Applicant assumes that what was intended was U.S. Patent No. 5,991,771, and requests that this patent number for Falls be clarified by the Patent Office. Applicant respectfully submits that claims 42-44 and 46-48 are not obvious over Falls in view of Zakai.

Falls is directed to transaction synchronization in a disconnectable computer and network (see, Title). As discussed in the Abstract of Falls, each transaction includes operations that were performed on a database replica on one computer while that computer was disconnected from another computer and hence from that other computer's replica. Transaction synchronization, which occurs after the computers are reconnected, transfers information from each computer to the other computer and applies updates to both replicas as appropriate. Transaction logs and clash handling tools may be used with the invention.

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With respect to claim 42, claim 42 recites:

> A method, implemented in a directory group, the method comprising:
> selecting another directory group to participate with in a replica placement improvement process;
> selecting a file maintained by the directory group;
> determining whether exchanging a replica of the file with a replica of another file maintained by the other directory group will increase a combined file availability of the files; and
> having the replica of the file and the replica of the other file exchanged if exchanging the replicas will increase the combined file availability of the files.

Applicant respectfully submits that no such method is disclosed or suggested by Falls in view of Zakai.

As discussed above regarding claim 19, Zakai discusses balancing workloads (see, col. 4, lines 64-66), and that data swaps are performed to balance workloads (see, col. 5, lines 50-52). However, nowhere in Zakai is there any discussion or mention of determining whether exchanging a replica of the file with a replica of another file maintained by the other directory group will increase a combined file availability of the files. Zakai is concerned with balancing workloads, not increasing a combined availability. Without any discussion or mention of increasing a combined availability, Applicant respectfully submits that Zakai cannot disclose or suggest determining whether exchanging a replica of the file with a replica of another file maintained by the other directory group will increase a combined file availability of the files as recited in claim 42.

With respect to Falls, Falls is not cited as curing, and does not cure these deficiencies of Zakai. Accordingly, for at least these reasons, Applicant respectfully submits that claim 42 is allowable over Falls in view of Zakai.

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With respect to claims 44 and 46, given that claims 44 and 46 depend from claim 42, Applicant respectfully submits that claims 44 and 46 are likewise allowable over Falls in view of Zakai for at least the reasons discussed above with respect to claim 42.

With respect to claim 43, claim 43 depends from claim 42 and Applicant respectfully submits that claim 43 is allowable over Falls in view of Zakai for at least the reasons discussed above with respect to claim 42. Furthermore, claim 43 recites:

> A method as recited in claim 42, further comprising:
> receiving, at the directory group, an indication of a homeless replica of the file; and
> selecting, as a computing device on which to store the homeless replica, one of a plurality of computing devices on which no other replica of the file is already stored.

Applicant respectfully submits that no such method is disclosed or suggested by Falls in view of Zakai.

In the May 4, 2005 Office Action at p. 32, Zakai at col. 4, lines 45-60 is cited as disclosing the receiving and selecting of claim 43. This cited portion of Zakai discusses swap priorities for each individual storage volume A-G of Zakai, the swap priorities being a value of "enabled", "disabled", and "preferred". The value "disabled" stops the service processor from swapping data in the associated storage volume, the value "enabled" allows the service processor to swap data in the associated storage volume, and the value "preferred" makes the service processor swap the associated storage volume before swapping storage volumes having the value "enabled". There is no discussion or mention, however, that this prioritization mechanism of Zakai is based on replicas of a file or whether a

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computing device has no other replica of the file already stored thereon. Without any such discussion or mention, Applicant respectfully submits that Zakai cannot disclose or suggest selecting, as a computing device on which to store the homeless replica, one of a plurality of computing devices on which no other replica of the file is already stored as recited in claim 43.

With respect to Falls, Falls is not cited as curing, and docs not cure these deficiencies of Zakai. Accordingly, for at least these reasons, Applicant respectfully submits that claim 43 is allowable over Falls in view of Zakai.

With respect to claims 47 and 48, claims 47 and 48 depend from claim 42 and Applicant respectfully submits that claims 47 and 48 are allowable over Falls in view of Zakai for at least the reasons discussed above with respect to claim 42. Furthermore, Applicant respectfully submits that, similar to the discussion above regarding claim 16, Zakai discusses selection of data swaps based on workloads, not on a file's availability. Thus, Zakai docs not disclose or suggest wherein the file is selected as the one of a plurality of files managed by the directory group having a lowest file availability, or the other file is selected as the one of another plurality of files managed by the other directory group having a highest file availability. With respect to Falls, Falls is not cited as curing, and does not cure these deficiencies of Zakai. Accordingly, for at least these reasons, Applicant respectfully submits that claims 47 and 48 are allowable over Falls in view of Zakai.

Claim 45 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Falls in view of Zakai and further in view of Rabinovich. Applicant respectfully submits that claim 45 is not obvious over Falls in view of Zakai.

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With respect to claim 45, claim 45 depends from claim 42, and Applicant respectfully submits that claims 45 is allowable over Falls in view of Zakai for at least the reasons discussed above with respect to claims 42. Rabinovich is not cited as curing, and does not cure, these deficiencies of Falls in view of Zakai. Accordingly, for at least these reasons, Applicant respectfully submits that claim 45 is allowable over Falls in view of Zakai and further in view of Rabinovich.

Conclusion

Claims 1-48 are in condition for allowance. Applicant respectfully requests reconsideration and issuance of the subject application. Should any matter in this case remain unresolved, the undersigned attorney respectfully requests a telephone conference with the Examiner to resolve any such outstanding matter.

Respectfully Submitted,

Date: 10/25/05

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